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EXAMINER	
WONG, WARNER	

ART UNIT	PAPER NUMBER
2668	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/077,405	Applicant(s) LEBLANC, WILFRID	
	Examiner Warner Wong	Art Unit 2668	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

The following claims are objected to because of the following informalities:

1. Claim 6, line 2: the limitation "a first amount" appears to be referring to the same limitations in claim 5, line 4. It should be corrected to "the first amount".

2. Claim 8, lines 2 and 4 recites the limitations "a first amount" and "a second amount" respectively. It appears that they refer to the same limitations in claim 5, line 5 and claim 7, line 2 respectively and should be corrected to "the first amount" and "the second amount" respectively.

3. Claim 24, line 1: the claim depends on claim 22, yet has the limitation "the lost data element recovery mechanism" which lacks antecedent basis. It appears that the claim depends on claim 23 instead.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duault (6,912,224) in view of Yao (6,097,697).

Regarding claim 1, Duault describes a method of processing digital media data stream (col. 1, line 31, "for example, voice traffic") comprising a stream of data elements (packets/cells), comprising:

(a) receiving the data stream (col. 2, lines 64-66, where data arrives at the apparatus");

(b) holding each data element that is received prior to an end of a time period in a buffer until the end of the time period, at which time the data element is released for playout (col. 2, lines 66-67 and col. 3, lines 1-3).

Duault lacks what Yao describes:

(c) computing (monitoring) a loss rate at which data elements in the data stream are not received by the end of their respective time periods (fig. 2, period of sequence of packet dP=17, and col. 4, lines 29-31, "Rate controller 116 computes two statistics for such a sequence of sent packets 200. the first is a loss rate,");

(d) adjusting a duration of the time period (transmission rate) based upon the loss rate (col. 4, lines 59-61, "a rate controller computes an excess loss rate, L-L[0] and a loss ratio 1-L[s] in order to adjust the transmission rate").

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate the monitoring and the adjustment of hold period before playout using the loss rate. The motivation being that "The [loss rate] statistics provide indications of congestion of the data network" (Yao, col. 2, lines 56-57), and the statistic may be used to minimize such network congestion.

Regarding claim 2, Duault and Yao combined describe all limitations in claim 1. Yao further describes:

adjusting step (d) comprises increasing the duration of the time period if the loss rate is above a first threshold (col. 5, lines 8-15, "On loss rate axis 310, a loss hysteresis threshold [LOSS_HYST] 312 defines a range 314 between LOSS_HYST and 1.0. In this range, an excess loss rate contributes to a decrease in transmission rate" [i.e. increased duration of time period].)

Regarding claim 3, Duault and Yao combined describe all limitations in claim 1. Yao further describes:

adjusting step (d) comprises setting the duration of the time period at a first value (col. 6, line 26, new transmission rate R_new) if the loss rate is relatively low (col. 6, lines 23, "If the combined factor is negative, then the rate [R-new] is decrease", where the combined factor comprises two "loss rate" affecting (sub)-factors: "Based on the loss ratio and excess loss rate of a sequence of packets, rate controller 116 computes two factors, a span factor and a loss factor", col. 5, lines 41-43);

and setting the duration at a second value (col. 6, line 28, new transmission rate R_new), greater than the first value (increased transmission rate), if the loss rate is relatively higher (col. 6, lines22- 23, "If the combined factor is positive, then the rate [R-new] is increased", where the combined factor comprises two "loss rate" affecting (sub)-factors: "Based on the loss ratio and excess loss rate of a sequence of packets, rate controller 116 computes two factors, a span factor and a loss factor", col. 5, lines 41-43);

Regarding claim 4, Duault and Yao combined describe all limitations in claim 1. Yao further describes:

adjusting step (d) comprises decreasing the duration of the time period if the loss rate is relatively low, and increasing the duration if the loss rate is relatively higher (col. 5, lines 8-15, "On loss rate axis 310, a loss hysteresis threshold [LOSS_HYST] 312 defines a range 314 between LOSS_HYST and 1.0. In this range, an excess (high) loss rate contributes to a decrease in transmission rate [i.e. increased duration of time period]. The negative of the loss hysteresis threshold [-LOSS_HYST] (low loss rate) 316 defines a range 318 from –LOSS_HYST to –1.0 in which the excess loss rate contributes to an increase in transmission rate [i.e. decreased duration of time period].")

Regarding claim 5, Duault and Yao combined describe all limitations in claim 1. Yao further describes the adjustment of step (d) comprises:

(d)(i) if the loss rate is lower than a first threshold (LOSS_HYST), maintaining the duration of the time period at a present value (fig. 3, range between #316 and #312, where transmission rate is unchanged) and

(d)(ii) if the loss rate is greater than the first threshold, increasing the duration of the time period by a first amount higher (col. 5, lines 8-15, "On loss rate axis 310, a loss hysteresis threshold [LOSS_HYST] 312 defines a range 314 between LOSS_HYST and 1.0. In this range, an excess (high) loss rate contributes to a decrease in transmission rate [i.e. increased duration of time period]").

Regarding claim 6, Duault and Yao combined describe all limitations in claim 5. Duault and Yao further describe that step (d)(ii) comprises:

increasing the duration of the time period by a first amount that is substantially equivalent to a duration of the media represented by one data element (Duault, col. 4, lines 36-40, where the POB level is the buffer size and the increase of duration by a first amount is equivalent to the [extra] time in transmitting a byte of data [element]).

Regarding claim 9, Duault and Yao combined describe all limitations in claim 1. Duault and Yao further describe that step (d) comprises:

(d)(i) if the loss rate is lower than a first threshold (fig. 3, -LOSS_HYST #316), decreasing the duration of the time period;

(d)(ii) if the loss rate is greater than the first threshold but less than a second threshold (fig. 3, LOSS_HYST #312), maintaining the duration of the time period at a present value [fig. 3, between -LOSS_HYST #316 and LOSS_HYST #312); and

(d)(iii) if the loss rate is greater than the second threshold (LOSS_HYST), increasing the duration of the time period;

(col. 5, lines 8-15, "On loss rate axis 310, a loss hysteresis threshold [LOSS_HYST] 312 defines a range 314 between LOSS_HYST and 1.0. In this range, an excess (high) loss rate contributes to a decrease in transmission rate [i.e. increased duration of time period]. The negative of the loss hysteresis threshold [-LOSS_HYST] (low loss rate) 316 defines a range 318 from –LOSS_HYST to –1.0 in which the excess loss rate contributes to an increase in transmission rate [i.e. decreased duration of time period].")

Regarding claim 10, Duault and Yao combined describe all limitations set forth in claim 1. Duault further describe that the data elements are frames of encoded data (col. 3, lines 53-58, where data are packetized in ATM and IP).

3. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duault in view of Yao as applied to claim 5 above, and further in view of Chiussi (5,905,711).

Regarding claim 7, Duault and Yao combined describe all limitations in claim 5. Duault and Yao further describe the adjustment of step (d) comprises:

(d)(iii) if the loss rate is greater than a threshold, increasing the duration of the time period by a second amount that is greater than the first amount (col. 4, lines 36-40, where the POB level is the buffer size and the increase of duration by a second amount is equivalent to the [extra] time in transmitting 2+ bytes of data [element]).

Duault and Yao combined lack what Chiussi describe:

A second threshold that is greater than the first threshold (abstract, where second threshold is a greater value than the first threshold [to direct **all** data sources to reduce data transfer rate).

It would have been obvious to one of ordinary skill in the art at the time or motivation to describe first and second thresholds to indicate the step increase of duration of time period in Duault and Yao. The motivation being that this is "a method and apparatus that achieves good performance by guaranteeing fairness and control on the buffer size and is simple to implement", (col. 2, lines 12-14).

Regarding claim 8, Duault, Yao and Chiussi describe all limitations set forth in claim 7. Duault further describes step (d)(ii) comprises:

increasing the duration of the time period by a first amount that is substantially equivalent to a duration of the media represented by one data element and wherein step (d)(iii) comprises increasing the duration of the time period by a second amount that is substantially equivalent to twice the duration of the media represented by one data element (col. 4, lines36-40, where the increase of duration by a second amount is equivalent to the proportional time [twice the duration] in transmitting 2 bytes of data [element]).

4. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Duault in view of Yao as applied to claim 10 above, and further in view of Larson (4,569,042).

Duault, and Yao describe all limitations set forth in claim 1. Duault and Yao lack what Larson describes:

the time period begins for each transmitted data element when the data element is sent by a transmitting end (col. 2, lines 25-28, where the originating transmit time is passed down the network [to be used by loss rate adjustments]).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the originating transmit time in the loss rate adjustment method of Duault and Yao. The motivation being that such (intermediate) delay may be included in minimizing the overall delay of sensitive/real time transmission (Duault, col. 1, lines 28-35).

5. Claims 12-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duault in view of Yao, and further in view of Mourier (6,335,918).

Regarding claim 12, Duault describes a method of (transmitted) digital media data stream comprising a stream of data elements (packets/cells), the method comprising a playout buffer (col. 2, lines 64-66).

Duault lack what Yao describes:

(a) receiving, by an adaptive jitter buffer, a subsequent data element that follows the unreceived data element in the data stream (fig. 2, where packets 5 is a subsequent data element).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate the monitoring and the adjustment of hold period before playout using the loss rate (unreceived data element). The motivation being that "The [loss rate] statistics provide indications of congestion of the data network" (Yao, col. 2, lines 56-57), and the statistic may be used to minimize such network congestion.

Duault and Yao combined lack what Mourier describes: a device for estimating a loss ratio (unreceived) of data element:

(b) estimating [by the adaptive jitter buffer] a parameter of the unreceived data element (loss ratio) based on the received subsequent data element (col. 2, lines 26-33, where each cell instant defines (one) received subsequent data element.)

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to estimate the unreceived data element based on subsequent

data element(s). The motivation being that such estimation may minimize overflows in the jitter buffer/stack, resulting in lost data (Mourier, col. 1, lines 31-36).

Regarding claim 13, Duault, Yao and Mourier combined describe all limitations set forth in claim 12. Duault, Yao and Mourier further describe:

receiving step (a) comprises receiving a plurality of subsequent data elements that follow the unreceived data element in the data stream (Yao, fig 2, where packets 5-17 are subsequent data element), and estimating step (b) comprises estimating a parameter of the unreceived data element based on the received subsequent data elements (Mourier, col. 3, lines 18-47, where counter B[l] tallies lost cell(s) and traffic summer (sum)p tallies total cells of a period [cell(s) before and after the lost/unreceived cell(s)].)

Regarding claim 14, Duault, Yao and Mourier combined describe all limitations set forth in claim 13. Duault, Yao and Mourier further describe:

the estimation step (b) is also based on a prior data element that precedes the unreceived data element in the data stream (Mourier, col. 3, lines 21-24, "For each highway p of the switch, a traffic summator 4 maintains a variable (sum)p equal to the number of cells which are destined therefor during each current cycle time of a cell", where (sum)p comprises a prior data element.)

Regarding claim 15, Duault, Yao and Mourier combined describe all limitations set forth in claim 12. Duault further describes that the received data element are held in a buffer (col. 2, lines 64-66).

Regarding claim 16, Duault, Yao and Mourier combined describe all limitations set forth in claim 15. Duault further describes step (c) of holding each data element that is received in a buffer until the end of the time period, at which time the data element is released for playout (col. 2, lines 66-67 and col. 3, lines 1-3).

Regarding claim 17, Duault, Yao and Mourier combined describe all limitations set forth in claim 16. Yao further describes:

(d) computing (monitoring) a loss rate at which data elements in the data stream are not received by the end of their respective time periods (fig. 2, period of sequence of packet dP=17, and col. 4, lines 29-31, "Rate controller 116 computes two statistics for such a sequence of sent packets 200. the first is a loss rate,");

(e) adjusting a duration of the time period (transmission rate) based upon the loss rate (col. 4, lines 59-61, "a rate controller computes an excess loss rate, L-L[0] and a loss ratio 1-L[s] in order to adjust the transmission rate").

Regarding claim 18, Duault, Yao and Mourier combined describe all limitations in claim 17. Yao further describes:

adjusting step (e) comprises increasing the duration of the time period if the loss rate is above a first threshold (LOSS_HYST) (col. 5, lines 8-15, "On loss rate axis 310, a loss hysteresis threshold [LOSS_HYST] 312 defines a range 314 between LOSS_HYST and 1.0. In this range, an excess loss rate contributes to a decrease in transmission rate" [i.e. increased duration of time period].)

Regarding claim 19, Duault, Yao and Mourier combined describe all limitations in claim 18. Duault further describes adjusting step (e) comprises:

increasing the duration of the time period by an amount that is substantially equivalent to a duration of the media represented by one data element if the loss rate is greater than the first threshold (col. 4, lines 36-40, where the POB level is the buffer size and the increase of duration by a first amount is equivalent to the [extra] time in transmitting a byte of data [element]).

Regarding claim 20, Duault, Yao and Mourier combined describe all limitations in claim 18. Yao further describes adjusting step (e) comprises:

decreasing the duration of the time period if the loss rate is below than a second threshold (fig. 3, -LOSS_HYST #316) that is lower than the first threshold (LOSS_HYST) (fig. 3, where -#316 is lower than #312).

Regarding claim 22, Duault, Yao and Mourier combined describe all limitations in claim 12. Duault further describe that the data elements are frames of encoded data (col. 3, lines 53-58, where data are packetized in ATM and IP).

6. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Duault in view of Yao and Mourier as applied to claim 17 above, and further in view of Larson (4,509,042).

Duault, Yao and Mourier combined describe all limitations in claim 17. Duault, Yao and Mourier lack what Larson describes:

The time period begins for each transmitted data element when the data element is sent by a transmitting end (col. 2, lines 24-27).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use transmitting start time (timestamp) in monitoring loss rate time periods. The motivation being that end-to-end delays (using transmitting start time) are critical in calculating (loss rate) parameters for time-sensitive transmission such as voice communication (Larson, col. 1, lines 21-27).

7. Claim 23-25 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duault in view of Mourier.

Regarding claim 23, Duault describes an apparatus for processing transmitted digital media data stream (col. 1, line 31, "for example, voice traffic") comprising a stream of data elements (fig. 3, "For each packet received from network" box), the apparatus comprising:

a playout buffer (col. 2, lines 64-66) (adaptive jitter buffer) to receive a transmitted digital data stream (col. 2, lines 64-66, where data arrives at the apparatus") and to hold each received data element until an end of a time period, at which time the data element is released for playout (col. 2, lines 66-67 and col. 3, lines 1-3);

Duault lacks what Mourier describes:

a device (lost data element recovery mechanism) for estimating a loss ratio (parameter of an unreceived data element) based on a received subsequent data element that follows the unreceived data element in the data stream (col. 2, lines 26-33, where each cell instant defines (one) received subsequent data element.)

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to estimate the unreceived data element based on subsequent data element(s) for the buffer apparatus of Duault. The motivation being that such estimation may minimize overflows in the jitter buffer/stack, resulting in lost data (Mourier, col. 1, lines 31-36).

Regarding claim 24, Duault and Mourier combined describe all limitations set forth in claim ~~22~~**[23]**. Mourier further describe:

the switch (fig. 2, #1) (lost data element recovery mechanism) to estimate a parameter of the unreceived data element based on a plurality of received subsequent data elements that follow the unreceived data element in the data stream (Mourier, col. 3, lines 18-47, where counter B[I] tallies lost cell(s) and traffic summer (sum)p tallies total cells of a period [cell(s) before and after the lost/unreceived cell(s)].)

Regarding claim 25, Duault and Mourier combined describe all limitations set forth in claim 23. Duault and Mourier further describe:

the switch (lost data element recovery mechanism) to also estimate based on a prior data element that precedes the unreceived data element in the data stream (Mourier, col. 3, lines 21-24, "For each highway p of the switch, a traffic summator 4 maintains a variable (sum)p equal to the number of cells which are destined therefor during each current cycle time of a cell", where (sum)p comprises a prior data element.).

Regarding claim 32, Duault and Mourier combined describe all limitations set forth in claim 23. Duault further describes:

the media data stream is an encoded audio data stream (col. 1, line 31, "for example, voice traffic") comprising a plurality of audio data elements, each representing a portion of a transmitted audio session (fig. 3, "For each packet received from network" box).

Regarding claim 33, Duault and Mourier combined describe all limitations set forth in claim 23. Duault further describe that the data elements are frames of encoded data (col. 3, lines 53-58, where data are packetized in ATM and IP).

8. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duault in view of Mourier as applied to claim 23 above, and further in view of Yao.

Regarding claim 26, Duault and Mourier combined describe all limitations set forth in claim 23. Duault and Mourier lack what Yao describes:

[a controller (Duault, fig. 2, Control Logic #240)] computing (monitoring) a loss rate at which data elements in the data stream are not received by the end of their respective time periods (fig. 2, period of sequence of packet dP=17, and col. 4, lines 29-31, "Rate controller 116 computes two statistics for such a sequence of sent packets 200. the first is a loss rate,") and to adjust a duration of the time period (transmission rate) based upon the loss rate (col. 4, lines 59-61, "a rate controller computes an excess loss rate, L-L[0] and a loss ratio 1-L[s] in order to adjust the transmission rate").

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate the monitoring and the adjustment of hold period before playout using the loss rate (unreceived data element). The motivation being that

"The [loss rate] statistics provide indications of congestion of the data network" (Yao, col. 2, lines 56-57), and the statistic may be used to minimize such network congestion.

Regarding claim 27, Duault, Mourier and Yao and combined describe all limitations in claim 26. Yao further describes:

the controller is adapted to increase the duration of the time period if the loss rate is above a first threshold (LOSS_HYST) (col. 5, lines 8-15, "On loss rate axis 310, a loss hysteresis threshold [LOSS_HYST] 312 defines a range 314 between LOSS_HYST and 1.0. In this range, an excess loss rate contributes to a decrease in transmission rate" [i.e. increased duration of time period].)

Regarding claim 28, Duault, Mourier and Yao combined describe all limitations in claim 27. Yao further describes:

the controller is adapted to increase the duration of the time period by an amount that is substantially equivalent to a duration of the media represented by one data element if the loss rate is greater than the first threshold (col. 4, lines 36-40, where the POB level is the buffer size and the increase of duration by a first amount is equivalent to the [extra] time in transmitting a byte of data [element]).

Regarding claim 29, Duault, Mourier and Yao combined describe all limitations in claim 27. Yao further describes:

the controller is adapted to decrease the duration of the time period if the loss rate is below than a second threshold (fig. 3, -LOSS_HYST #316) that is lower than the first threshold (LOSS_HYST) (fig. 3, where -#316 is lower than #312).

Regarding claim 31, Duault and Mourier combined describe all limitations in claim 23. Duault and Mourier lack what Yao describes:

a decoder (network node #110B) adapted to receive data elements from the Jitter buffer (fig. 1, intermediate node #104) and to decode the data elements to produce decoded data elements representing media samples (fig. 1, where application layer #112 receiving decoded packets/elements from (lower) transport & network layers #118 and #120).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a decoder to decode data outputs from a jitter buffer (intermediate network node). The motivation being that the data is transported from one network node to another via the standardized ISO protocol stack, requiring a layered approach to transmission of data (coding & decoding).

9. **Claim 30** is rejected under 35 U.S.C. 103(a) as being unpatentable over Duault in view of Mourier and Yao as applied to claim 26 above, and further in view of Larson.

Duault, Mourier and Yao combined describe all limitations in claim 26. Duault, Mourier and Yao lack what Larson describes:

The time period begins for each transmitted data element when the data element is sent by a transmitting end (col. 2, lines 24-27).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use transmitting start time (timestamp) in monitoring loss rate time periods. The motivation being that end-to-end delays (using transmitting start time)

are critical in calculating (loss rate) parameters for time-sensitive transmission such as voice communication (Larson, col. 1, lines 21-27).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Fukuda (2002/0136164), Sivakumar (2003/0067877), LeBlanc (2002/0114285) and LeBlanc (2004/0057445).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 5:30AM - 2:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Warner Wong
Examiner
Art Unit 2668

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER